

Claims

1. Raman amplifier comprising at least one length of fiber, in which an optical signal propagates, and at least a coupler for coupling at least a first pump laser module and a second pump laser module to said Raman amplifying fiber,
the first pump laser module comprising a frequency discriminator for selecting an optical frequency to be emitted with an optical power exceeding an optical power of remaining optical frequencies that are also emitted by said first pump laser module, wherein said first optical frequency being selected to be spaced apart from a local maximum in optical power of said remaining optical frequencies, said optical frequencies being on Stokes-frequency above the signal frequency range,
said second pump laser module emitting at an optical frequency one Stokes-frequency apart from the frequency of said local maximum.
2. The Raman amplifier of claim 1, wherein said first pump laser module comprises at least one semi-conductor laser diode.
3. The Raman amplifier of claim 2, wherein said at least one semi-conductor laser diode has an emission gain curve with a broadness in the range of 20 to 40 nm.
4. The Raman amplifier of claim 1, wherein said at least one first pump laser module represents a depolarized

pump source.

5. The Raman amplifier of claim 1 or 4, wherein the at least one first pump laser module comprising a couple of semi-conductor laser diodes that are polarization multiplexed.
6. The Raman amplifier of claim 1, wherein a Fiber Bragg Grating as said frequency discriminator.
7. The Raman amplifier of claim 2 and claim 6, wherein said Fiber Bragg Grating selecting an optical frequency at a low optical frequency trailing edge of a gain curve of said semiconductor laser diode.
8. The Raman amplifier of claim 7, wherein said Fiber Bragg Grating selecting an optical frequency corresponding to a wavelength being 10 to 20 nm longer than the wavelength corresponding to the optical frequency of said local maximum in optical power of said remaining optical frequencies.
9. The Raman amplifier of claim 1, wherein said second pump laser module is a Raman laser.
10. Method for pumping a Raman amplifier, the method comprising the steps of:
providing at least one length of Raman amplifying fiber,
coupling at least a first pump laser module and a second pump laser module to said Raman amplifying fiber,
selecting an optical frequency to be emitted by the

first pump laser module with an optical power exceeding an optical power of remaining optical frequencies that are also emitted by said first pump laser module,
wherein selecting said first optical frequency to be spaced apart from a local maximum in optical power of said remaining optical frequencies, said optical frequencies being one Stokes frequency above the signal frequency rang, said second pump laser module emitting at an optical frequency one Stokes-frequency apart from the frequency of said local maximum.